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PROVISIONAL SPECIFICATION.

Improvements in Electric Belts for the Electric Treatment of the Human Body.

A communication by MICHAEL ALEXANDER McLAUGHLIN, of 214, State Street, Chicago, in the State of Illinois, United States of America, Merchant & Manufacturer.

I, WILLIAM PHILLIPS THOMPSON, F.C.S., M.I.M.E., Agent for Foreign Patent Solicitors, 6, Lord Street, Liverpool, and 6, Bank Street, Manchester, both in the County of Lancaster, 118, New Street, Birmingham, in the County of Warwick, and 322, High Holborn, in the County of Middlesex, Civil Engineer,
5 do hereby declare the nature of this invention to be as follows:—

This invention relates to electric belts for the electric treatment of the human body.

In this invention cells are provided having a thin sheet of brass outside and forming a protecting-cover for a zinc and copper plate. There are absorbent layers
10 on each side of said plate and a brass-plate is provided with a zinc-plate soldered to the inside thereof and folded upon the absorbent material; said brass-plate being of a size to completely cover and form a protection for said zinc-plate. A rheostat is also provided between the battery and the electrode so that the patient can readily and accurately adjust the device to give the required current. The
15 rheostat which is fastened to the plate has a high resistance-conductor, and a key to connect between one pole of the battery and the conductor leading to the electrode.

The belt is also provided with a suspensory containing an electrode upon which the scrotum of the male wearer will rest and said electrode is connected with one
20 pole of the battery.

Two electrodes are provided in the usual manner for application to the back of the patient and the rheostat is placed on the conductor between said electrodes and one pole of the battery, so that the current is regulated by the one single rheostat. The conductor for the suspensory-electrode and the conductor for any
25 of the other electrodes which are to take the current through the body from the two back electrodes, are connected with the other pole of the battery. Any required number of conductors may be connected with said other pole of the battery.

The electrodes of this improved belt are respectively composed of a metallic
30 plate pressed into a concavo convex form and on the back of such plate, a metal strip is soldered to the plate and the ends of the strip are perforated and are bent to clasp webbing of the belt upon which the electrodes are fastened. The metal strip thus affords a sliding-loop which can be slid along the webbing of the belt to adjust the electrode to the exact spot desired. The ends of the metal strip are
35 perforated to receive and hold a hook on the end of the conductor to be connected with the electrode. With the electrodes which are to engage the back and stomach of the wearer, the loops are fastened to the concave face, while with the electrode designed for the suspensory, the concave face is preferably upward to form the rest for the scrotum, and the convex face is provided with a metal eye or staple, into
40 which the hook of the conductor can hook.

[Price 8d.]

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The rheostat for the belt is formed of a non-conducting composition centrally perforated and fastened to the belt by a metallic eyelet. The switching of the conductor is formed of a metal strip pivoted to the non-conducting plate by a screw which passes through the plate and screws into a nut which clamps upon the end of the conductor which is connected with the electrodes which are to fit against the back of the wearer. The non-conducting plate is provided with a groove in the segment of a circle and a high-resistance filling is in the groove, while a plurality of metallic pins are inserted through the plate into the filling and their heads project from the plate. A pivoted key swings over and contacts with the projecting portions of the pins. The user adjusts the strength of the current by swinging the key from pin to pin in the manner of regulating the current by means of ordinary rheostats. 5 10

Dated this 17th day of April 1900.

WM. P. THOMPSON & Co.,
Agents.

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COMPLETE SPECIFICATION.

Improvements in Electric Belts for the Electric Treatment of the Human Body.

A communication by MICHAEL ALEXANDER McLAUGHLIN, of 214, State Street, Chicago, in the State of Illinois, United States of America, Merchant & Manufacturer. 20

I, WILLIAM PHILLIPS THOMPSON, F.C.S., M.I.M.E., Agent for Foreign Patent Solicitors, of 6, Lord Street, Liverpool, and 6, Bank Street, Manchester, both in the County of Lancaster, 118, New Street, Birmingham, in the County of Warwick, and 322, High Holborn, in the County of Middlesex, Civil Engineer, do hereby declare the nature of this invention and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement:— 25

An object of this invention is to provide an electro-therapeutic device which will afford to the patient at all times a constant current of any required intensity. 30

It is proposed to avoid all inconvenience and all irregularity of the application of the electric current as fully and entirely as possible.

It is an object of this invention to reduce electro-therapeutics to an exact science by enabling the practitioner to give to the patient exactly the treatment required in the individual case. This invention is based upon the principle that the patient should be subjected to the proper electrical action at all times or for continued periods of many hours, and for this reason the appliance employed by my correspondent is of that class of devices known as electric-belts. But it has heretofore been impossible by means of any electric-belt to provide for every patient the exact intensity of current required; and it has been found in practice that the current in any case should be under perfect control, for the reason that different patients require different treatment; and different conditions of the patient require different intensities of current, and the best results can be obtained only by a proper adjustment of the current to the condition of the patient from time to time. 35 40

By this invention a means is afforded to the practitioner and patient for scientifically applying the electrical treatment. The patient is also afforded greater comfort and ease under treatment; and also an economy and convenience are secured in treatment which has heretofore been impossible 45

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A further object is to make special provision of a belt to be worn by males, in which electrical application is made through the generative organs.

It is an object of this invention to make the use of an electric-belt a pleasure instead of submitting the wearer to the burning and blistering incident to old style
5 of belts.

Another object of this invention is to provide an electric-belt having a greater life than former electric-belts of like weight.

This invention comprises the belt and the several parts and combinations herein-
after set forth and claimed.

10 The accompanying drawings illustrate this invention.

Figure I is a perspective view of a belt embodying this invention.

Fig. II shows two of the belt-cells detached.

Fig. III is a section on line III—III Fig. II.

15 Fig. IV is a plan of one of the copper, brass, or other suitable metal blanks to which the zinc is soldered.

Fig. V is a view of the copper-plate and connecting-links which is fastened to the same.

Fig. VI is a front elevation of the rheostat detached.

Fig. VII is a rear view of the rheostat detached.

20 Fig. VIII is a section on line VIII—VIII Fig. VI.

Fig. IX is a section of one of the electrodes.

Fig. X is a fragmental section of the suspensory to show the construction of its electrode.

A indicates the body of the belt. B indicates the battery carried by the belt.
25 C indicates the rheostat fastened to the belt and connected with the battery by a conductor-ring D. E E¹ indicate electrodes, and F indicated a conductor connecting the rheostat with the electrodes. The rheostat is constructed of a plate 1 formed of a piece of fiber or hard rubber or other non-conducting material. 2 indicates a conducting-pin to which the ring D is fastened. 3 indicates a groove
30 in the rear side of the plate 1, and 4 indicates a high resistance material, such as graphite, with which the groove is filled. 5 5¹ 5¹¹ 5¹¹¹ indicate pins or metal points inserted through the plate 1 into the high resistance material 4 and projecting from the front side of the plate. Each of the pins preferably terminates in a rounded head to be engaged by the key 6 which is pivoted to the plate 1 by a pivot 7
35 and thereby connected with the conductor F. b indicates a hook connected with the battery and onto which the ring D of the rheostat hooks. The rheostat is fastened to the belt A by any suitable means, such as the rivets 8. When the hand of the key is thrown to the pin 5 which is furthest from the ring D, the current has to pass through such a length of the high resistance material 4 that
40 the current transmitted from the battery to the electrodes will be practically or absolutely *nil*; but as the hand is moved toward the ring D, the current will be increased until the hand is brought against the screw 2 by which the fastening d of the ring D is secured to the plate 1.

The electrodes E are covered with one or more thicknesses of felt e over which
45 is drawn a cover e¹ of cotton, shammy-skin or other suitable fabric. This felt covering is to be moistened when the belt is put on, and by means of it the burning and painful sensation ordinarily produced by electrodes of electric-belts is done away with.

The cells of the battery are formed as shown of an inner copper-plate b¹ to which
50 the link b¹¹ is fastened. Sheets b¹¹¹ of absorbent material are folded around the copper-sheet b¹. A thick zinc sheet b¹¹¹¹ is soldered to a brass or copper cover b⁴ and the sheet thus formed is folded around the absorbent material. The ends of the brass sheet b⁴ are lapped upon each other, as at b³, to receive the link of the cell next to it.

55 In practical use the brass protecting-cover b⁴ gives the necessary protection and strength to the zinc-plate b¹¹¹¹ which is soldered to it; and the cover b⁴ supports the zinc-plate until it is all eaten away by the corrosive action of the acids, thus

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giving a greater life to a cell of a given weight than has heretofore been possible in electric-belts.

In practical use the battery is placed in the bath of acid before being inserted into the body of the belt and is then attached at one end to the ring G which is held by the hook *a* and at the other end is hooked to the ring D by the hook *b*. The felt covers of the electrodes E are then moistened and the belt put on. The conductor H being brought into contact with the body, the patient will then move the hand G of the rheostat to regulate the intensity of the current to the degree desired.

E¹¹ indicates an electrode for application to the stomach, opposite the back electrodes E E¹. The electrode E¹¹ is carried by an elastic-strip M which is furnished at its ends with hooks *m* which hook into rings N fastened by means of loops O to the main belt A. P indicates the suspensory and E¹¹¹ indicates the electrode in the bottom of the same. The electrodes E E¹ E¹¹ are respectively composed of a metallic-plate pressed into a concavo convex form and on the back of such plate a metal-strip Q is soldered to the plate and the ends of the strip are perforated, as seen in Fig. IX and are bent to clasp the webbing R in the one instance, and the elastic-strip M in the other instance. The metal-strip thus bent around the webbing or elastic-strip of the belt affords a sliding-loop which can be slid along the webbing or the strip of the belt to adjust the electrodes to the exact spot desired. The conductors F and F¹ and H are furnished respectively with hooks *f* to hook into the perforated ends of the strip Q on their respective electrodes.

The electrode-plate E¹¹¹ for the suspensory is formed of a concavo convex metal-plate substantially the same as the plates which form the electrodes E E¹ E¹¹. The plate for the suspensory is preferably elliptical in form and its concaved face lies uppermost and is furnished with the absorbent pad *e* and the cover *e*¹ upon which the scrotum will rest. The hook *f* of the conductor H is hooked into a metallic eye S which is soldered to the concaved underside of the electrode-plate E¹¹¹.

Having now particularly described and ascertained the nature of the said invention, and in what manner the same is to be performed, as communicated to me by my foreign correspondent, I declare that what I claim is:—

1. The electric-belt set forth furnished with the battery, electrodes, conductors and rheostat, substantially as shown and described.
2. The combination of the battery, the main belt, the back and front electrodes, the suspensory with an electrode therein; conductors; and a rheostat for regulating the current through the conductors, substantially as shown and described.
3. The electric battery-cell for belts set forth having a thin sheet of brass outside of and forming a protecting covering for the zinc and copper plates, substantially as shown and described.

Dated this 7th day of January 1901.

W. P. THOMPSON & Co.,
Of 6, Lord Street, Liverpool, Agents for the Applicant.

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[This Drawing is a reproduction of the Original on a reduced scale]



